



## Water Note 5

### Economics in Water Policy: The value of Europe's waters

The Water Framework Directive introduces economic principles and methods for the management of Europe's waters. Indeed, it is the first piece of EU water legislation to explicitly integrate economics into its measures. For many Member States the directive's use of economics has brought a new approach to water management.

The Water Framework Directive introduces two key economic principles. First, it calls on water users – such as industries, farmers and households – to pay for the full costs of the water services they receive. Second, the directive calls on Member States to use economic analysis in the management of their water resources and to assess both the cost-effectiveness and overall costs of alternatives when making key decisions.



## Recovering the costs

One of the key innovations of the directive is its call for water services – such as supplying clean drinking water, irrigation for agriculture, reservoirs for hydropower and wastewater treatment facilities – to be charged at a price which fully reflects the services provided.

Under the directive the recovery of costs refers to several elements. The prices users pay for water should cover the operational and maintenance costs of its supply and treatment and the costs invested in infrastructure. The directive goes further and requires that prices paid by users also cover environmental and resource costs. This is a key step towards implementing the economic principle that polluters and users should pay for the natural resources they use and the damage they create.

Environmental costs include damage to ecosystems such as pollution that harms fish and wildlife in rivers. Extracting water for human causes repercussions such as reducing water levels in rivers and lakes and this may harm ecosystems. These costs do not appear on financial balance sheets, but they can be measured (see the box on economic tools).

When a water resource is partly or fully depleted and less water is available for other users the cost of that resource goes up. Recovering such resource costs is especially important in river basins where water is scarce (see the box on water scarcity).

**The Water Framework Directive** establishes a legal framework to protect and restore clean water across Europe and ensure its long-term and sustainable use. (Its official title is *Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.*)

The directive introduces an innovative approach to water management based on river basins, natural geographical and hydrological units, and sets specific deadlines for Member States to protect aquatic ecosystems. The directive addresses inland surface waters, transitional waters, coastal waters and groundwater, and establishes innovative principles for water management, including public participation in planning and economic approaches.

Article 9 of the directive calls for the recovery of the costs of providing water services. Article 5 requires an economic analysis of water use and Annex III lists the elements that Member States should include in this analysis. In 2000, the European Commission issued a Communication that sets the agenda for implementing Article 9 of the directive, on *Pricing policies to enhance the sustainability of water resources.*

To implement these principles fully Member States need to consider all activities that use water resources. Recovering costs from only certain activities does not guarantee the sustainable use of water. Collective water systems and individual factories and farms that pump groundwater must pay in equal measure.

The directive also states that water pricing should create incentives for the efficient use of water resources. If users pay the real costs of the water they use they will certainly waste less of it. This brings economic efficiency and reduces the financial burden on public authorities while improving the environment.

Member States are introducing this approach. In the United Kingdom many households do not have water meters and payments for water consumption are not tied to the level of use. A 2008 government strategy for England foresees an increase in metering to promote more efficient water use, as a step to ensure sufficient water remains available in view of future population growth and climate change trends. In France, irrigators have to be equipped with water meters whenever they go beyond extraction thresholds. Between 2000 and 2003, the share of irrigators with equipment rose from 54% to 71%, representing 85% of the overall irrigated area. Portugal has increased water prices for agricultural and industrial users to tackle water scarcity.



## First steps

As these examples indicate it is the role of Member States to implement cost recovery, which they can do with some leeway according to national conditions.

For all Member States, putting cost recovery mechanisms in place starts with a good economic analysis of current water prices and of the pressures and impacts of each river basin. The 2005 reports submitted by Member States on the characteristics of their river basins revealed that many Member States did not provide complete economic information, especially in the areas of industrial and agricultural users and the resource and environmental costs of water services. Results show that in many Member States households pay for a large share of the costs needed to provide them with water.

Most Member States still have significant work to do to introduce water pricing policies by the target date of 2010.

## Tools for economic analysis

Member States can use several economic methods and tools in their implementation of the directive. Key tools include the following:

*Estimating costs and benefits.* Economic analysis depends on estimates of costs and benefits. Many of these can be easily calculated. For example, the maintenance costs of existing water supply systems and the investment costs of new water supply or wastewater treatment systems. A full economic analysis should also estimate direct benefits such as reductions in the cost of drinking water treatment downstream when less pollution is discharged into a river. Indirect benefits such as an increase in jobs if cleaner coastal waters lead to higher tourism levels should also be considered.

Other benefits of clean water are more difficult to measure. Recreational anglers will benefit when a river's health improves and has more fish. Local inhabitants will enjoy rivers that aren't contaminated and have healthy ecosystems. Across the EU, many citizens will welcome improvements in the health of the Danube, Rhine and other major European rivers. *Valuation methods* provide ways of estimating such benefits and the corresponding costs of water problems. Examples of such methods include surveys on the "willingness to pay" for the environment. Some Member States have taken steps to introduce such methods in water management.

*Cost-effectiveness analysis* looks at the costs of alternative actions to reach a specific objective, which provides ways to choose the least-cost solution.

*Cost-benefit analysis* compares the overall costs and benefits of an initiative. It can be valuable in decisions under the directive, such as the test of "disproportionality", described in a separate box.

Further information on these methods can be found in Guidance document no. 1 on *Economics and the Environment* for the Water Framework Directive. A 2007 study on "*Costs and benefits relating to the implementation of the Water Framework Directive, with special focus on agriculture*" reviews Member State experiences in estimating the total costs and benefits of implementing the directive.



## Putting costs and benefits into proportion

The general objective of the Water Framework Directive is to achieve "good status" for all water bodies in 2015. Under certain conditions Member States are allowed to extend the deadline for particular water bodies if achieving the objectives by 2015 would be "disproportionately expensive". Member States can also choose to set a less stringent objective in a water body if "good status" is "disproportionately expensive" or not technically feasible. Derogations must meet stringent criteria, including the test of "disproportionately".

The directive uses this test for other water management decisions such as the designation of artificial or heavily modified water bodies (see *Water note no. 4* on this topic).

Assessing "disproportionately" means a comparison of costs and benefits in both qualitative and quantitative terms. In order to pass the test it is generally agreed that the costs should exceed the benefits by a significant margin.

*The willingness to pay for clean bathing waters and clean beaches is usually high*



## Pricing policies to address water scarcity and droughts

Water scarcity and droughts are a growing concern throughout Europe.

Mediterranean regions typically face the most acute problems, but these are nonetheless felt across the EU. An important drought in 2005 affected countries as far north as Denmark.

Water scarcity – a situation where demand exceeds the level of sustainable use – affects over 10% of the EU's population and almost 20% of its territory. Droughts are instead temporary declines in water resources due to low rainfall. The number of droughts has increased over the past 30 years and in 2003 they affected over 100 million people across Europe.

Climate change is expected to amplify both water scarcity and droughts in coming years.

In 2007 the European Commission called for common action to address the challenge of water scarcity and droughts in the European Union. It highlighted the fact that ineffective water pricing policies have contributed to the mismanagement of water resources in many areas.

In its recommendations the Commission underlined the need for full implementation of the Water Framework Directive and better pricing policies that incorporate the "user pays principle", which will encourage efficient water use and end needless losses.

## The need for strong analysis

Under the directive, economic analysis also underpins the Member States' work to prepare basin management plans for their rivers. These management plans - which are due by 2009 - will play a central role in ensuring the high quality of Europe's waters by 2015.

For their river basin plans, Member States will need to estimate the costs of implementing different possible measures. They will use these estimates to identify the most cost-effective set of measures that can improve the health of their water bodies so that they will at least reach "good status". All water bodies will need to achieve this as regards levels of chemical contamination. Bodies of surface water will need to ensure the health of their ecosystems and for groundwater the sustainability of resources is especially important. (For further information on these goals, see *Water notes 2 and 3* on surface and groundwater, respectively.)

Member States have a wide choice of measures to achieve these objectives. They can launch new investment projects, implement new regulations, set up economic instruments, and negotiate agreements with polluters. Some measures can entail costly investments. Economic analysis assessing the cost-effectiveness of alternative measures will be vital in ensuring that funds are spent well. The overall costs of implementing the directive can be greatly reduced if Member States take this approach fully into account.

Member States will be allowed to delay or reduce the 2015 objective where they can justify – using stringent criteria – that doing so in a specific water body would entail disproportionate costs. This is described in the box on page 3.

Member States will need to make forecasts of long-term water supply and demand based on the future population and economic scenarios of each river basin. These scenarios will be important to identify expected pressure changes – due to population growth or changes in agricultural production – and the estimated impacts of climate change on future water conditions.

In their 2005 reports only a few Member States presented detailed scenarios for the future. The Netherlands did for instance prepare forecasts of population growth and of key agricultural and industrial sectors up to 2015 for several river basin districts, including the Rhine Delta, which includes major cities such as Amsterdam.



## The value of Europe's waters

The directive specifies some elements for economic analysis. To ensure that this analysis is useful, Member States need to integrate it with the scientific and technical analyses they have to carry out. The results of an economic analysis should be clearly presented to allow for public discussion and ensure that all relevant impacts faced by a water basin are considered.

The Water Framework Directive introduces economic methods for improving water quality while maintaining its focus on the broader and often intangible value of water. Its preamble states that "water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such".

To learn more about the Water Framework Directive and Europe's waters, see the Water Information System for Europe (WISE) website at [water.europa.eu](http://water.europa.eu). The European Commission's web pages on water protection, which are linked to WISE, provide further information: see [http://ec.europa.eu/environment/water/index\\_en.htm](http://ec.europa.eu/environment/water/index_en.htm). The Commission's pages provide links to Member State websites and to guidance documents. Guidance document no. 1 describes the use of economics in the directive.